A Customer Perspective

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Introduction by Charles M. Zeh: Our next speaker will be Dan Kincaid from the Gas Research Institute. Dan is the Business Development Manager at GRI.

Introduction

Thank you, Chuck. I am glad that you edited that biographical material because I realized that it was probably longer than the time I am going to have up here to talk about the industrial customer's perspective. I think someone mentioned checking with cell phones to see what was going on with the stock market. Think about industrial executives around the world today. They are doing the same thing in their operations this week that they were doing last week as far as making products. But do you really think that in spite of the fact that we are discussing many great things today about ATS systems — and deregulation and distributed generation, that these industrial executives are sitting in their offices saying, "Do you know how I can exploit this deregulation opportunity through the use of the ATS system?" I have a feeling that they are probably thinking of something else other than what we are discussing. So let's keep our own perspective about what we are discussing here.

Perspective

What is our perspective? How do you put it together? How do you have a good feeling about something when history tells you to expect something else? You may have stubbed your toe on installing a new piece of equipment in the past, so you will never use that one again. Or if you do use it, you know it must be installed and used differently than it was in the past. You also have your current situation, your current experiences, including what you had for breakfast this morning and whether it did something to other parts of your system. Then you have the problem we all wrestle with: we have spent a lot of money trying to understand what the future is relative to whatever it is that we are trying to decide about. That future part then leads to a perception that we can operate an objective function where we can use all that historical, current, and future data. Then, depending on how much of our personal objective function goes into our corporate objective function, we make decisions. Anyway, I think our perspective is that the future for ATS is good!

If you remember Duke Energy's presentation yesterday, David Schultz said something to the effect that there is a life cycle for deregulation. And he showed us how some things happened in the telephone industry, the gas industry, and the electric industry to illustrate this life cycle.

And a similar life cycle is occurring in electric industry deregulation. Several groups, including DOE and GRI, helped pull together a study to look at some of these industrial perspectives. I am sharing some of that information here with you today.

The process that we are depicting here is something that has gone on in the natural gas industry, and which has brought us to where we are today. To some extent, the natural gas industry is a little bit ahead in the process of moving toward retail competition, compared to what is going on the electric industry.

Another speaker said that because of deregulation, many companies in the electric industry are having difficulties, especially with respect to generation, in thinking out further than 2 years. What does that do to your industrial customer's perspective when he's trying to plan his future — to build his plant or to try to do something with his product? And he is working with someone who has a 2-year investment perspective on supplying him electricity?

I think the importance of what we are thinking about, of why the perspective does have some bearing on those of you in the room today, is because we could be talking about 55 to 65 gigawatts of electricity for these targeted industries. Now, will we actually ultimately reach that? We certainly don't know. (Any by the way, DG is our abbreviation for distributed generation.) You could talk to three or four people who are knowledgeable in the field and get three or four different numbers. But there is enough potential to provide strong incentives to companies such as Solar, Allison who make turbines, and those in the reciprocating end of the business to do something to take advantage of this opportunity. Steam is also a major part of this opportunity, and sometimes, steam is more important than the electricity.

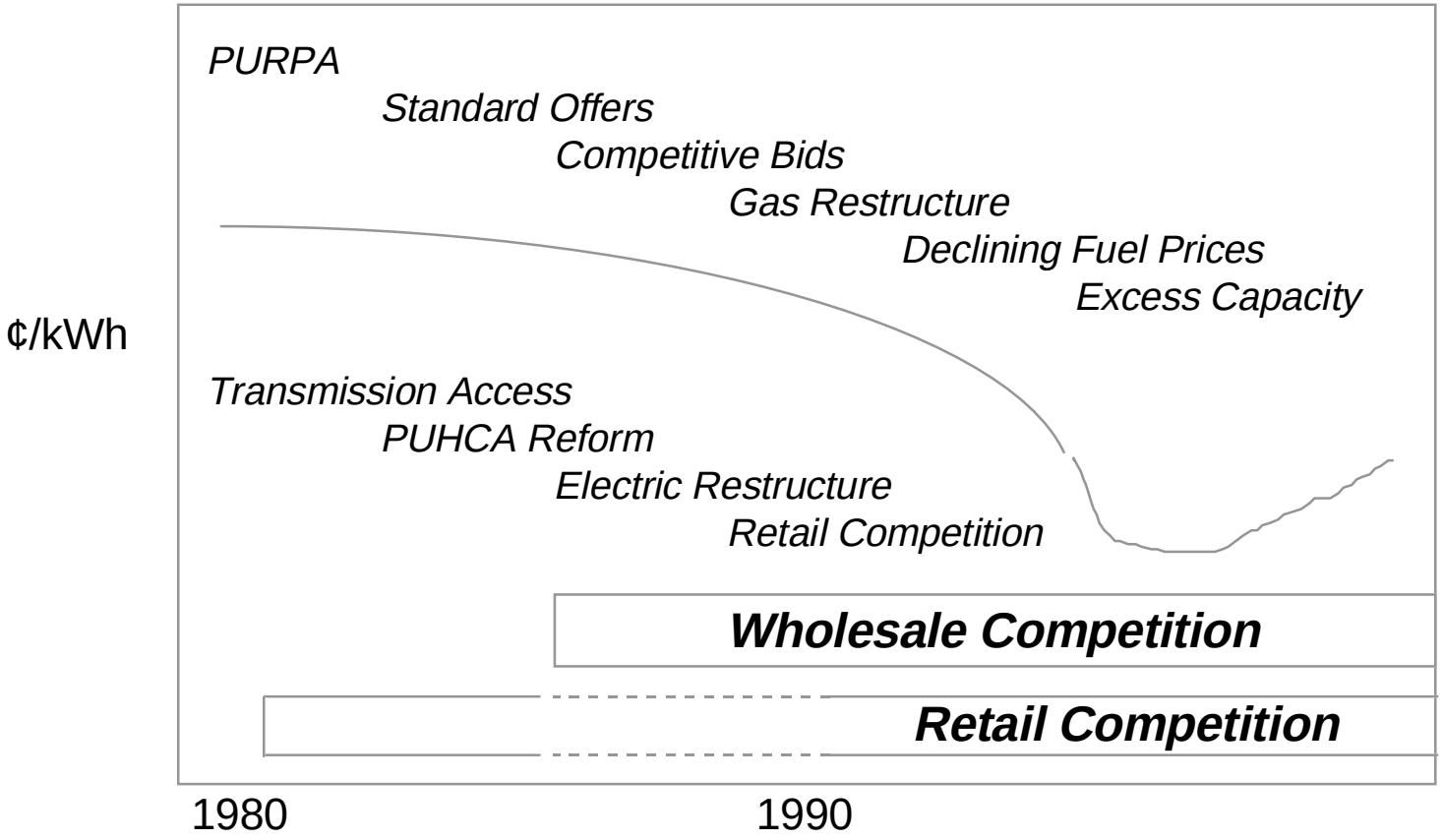
This is a somewhat lopsided view. Usually someone presents the benefits and offers many benefits and a few issues that deal with the risks and obstacles. And I do think those benefits are big benefits. However, many people do not have a good perspective on what the risks and obstacles are for those points that I indicated there. They also don't know why it will be up to the energy service companies to mitigate those risks for the industrial customer. These energy service companies (ESCOs) are being formed to provide a service for their industrial customers. The ESCOs are saying: "Okay, your core business is not making and getting electricity, natural gas, and other energy into your business. You make widgets, so why don't you concentrate on widgets and we will provide the energy. Electric and gas utilities used to provide the energy, but now, we are saying we will take the risk. We will put these packages together, and we will supply this energy to you."

And I think there is a tremendous interest in determining how to exploit the practice of distributed generation. I think we are going to have slow penetration for this practice until some of the risks associated with distributed generation can be better defined and compared with the benefits. A number of organizations are trying to develop a better understanding of these risks, benefits, and the timetable for the implementation of distributed generation. I urge you to become involved with one of these organizations to keep track of the opportunities as they develop so that you can determine your perspective on how you or your company may benefit.

ADVANCED TURBINE SYSTEMS

The Industrial User's Perspective

Electric Industry Competition



Implications for Distributed Generation

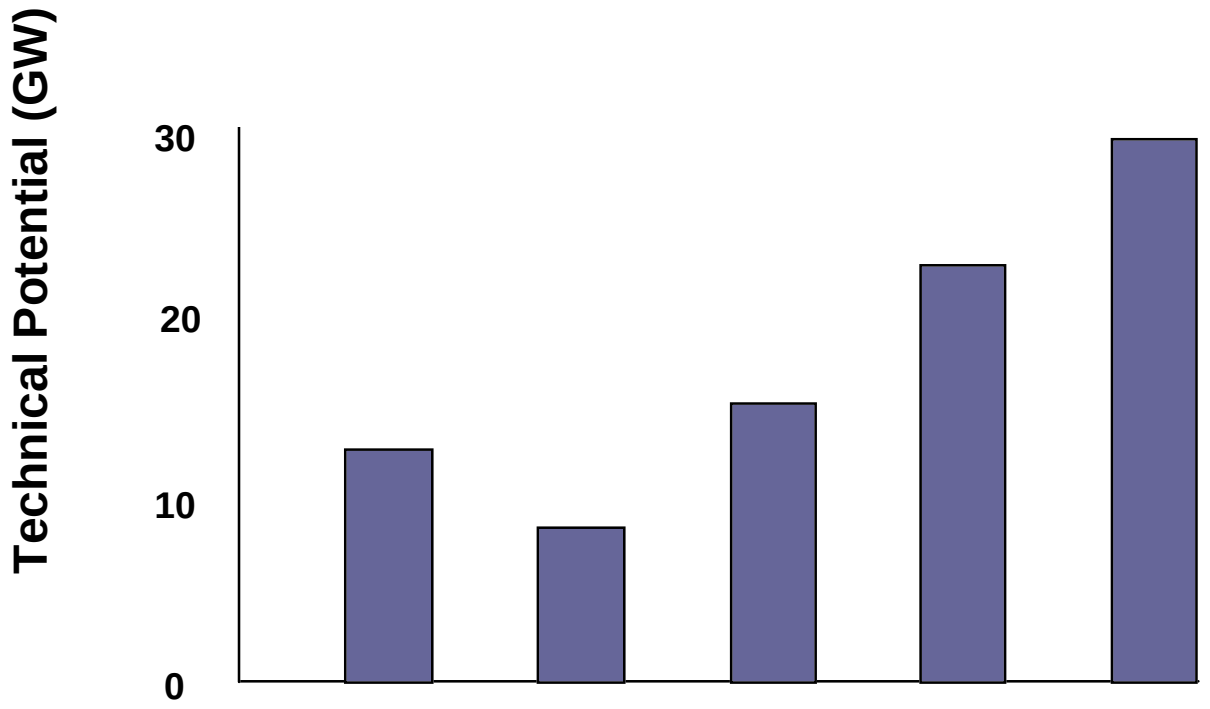
- **Electric industry restructuring should enable on-site generation to compete**
- **Customer will have energy supply choices**
  - **Lower operating costs and productivity will drive on-site power decisions**
- **Electric industry will seek least cost solutions**
- **Technology is proven**
  - **Industrial power generation**
  - **Cogeneration**

Implications for Distributed Generation

- **Utility**
  - **Avoided cost of T&D reinforcement**
  - **Deferred new central station generating capacity**
- **User (Customer)**
  - **Heat recovery utilization**
  - **Improved T&D system efficiency**
  - **Improved T&D system reliability**
  - **Utility/customer partnership**
  - **Improved power quality and reliability**
  - **Environmental and efficiency enhancements**
  - **Lower operating costs**

Overall Industrial Potential

Based on Installed Industrial Boiler Capacity



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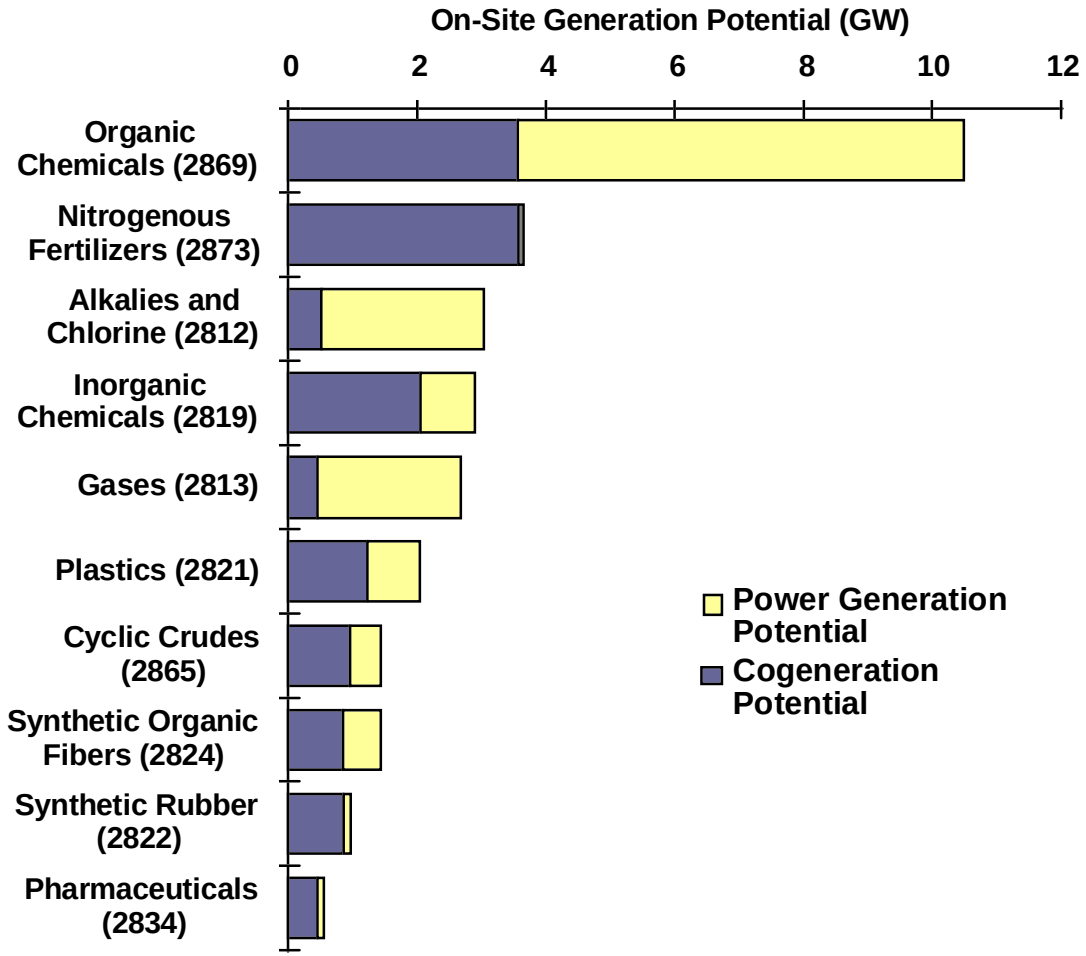
Total On-Site Power Potential
by Sector



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Customer Perspectives
On-site Generation

Benefits

- Lower operating costs
- Reliability

Risks & Obstacles

- Electric rate changes
- Fuel price volatility
- Regulatory uncertainty
- Permitting headaches
- Production forces & variability
- Restructuring unknowns
- Stranded cost recovery
- Performance risk
- Maintenance and operation nuisances
- Utility resistance
  - Stand by/backup rates
  - Interconnect
  - Deferral rates
- Capital budget limitations

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